REMARKS

In the Office Action of September 9, 2005, claims 4, 5, 7, 17, 18, 20 and 27 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, claims 1-3, 9, 11-16, 21, 23-26, 30 and 32-33 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Herley (U.S. Patent No. 5,838,818). In addition, claims 6, 8, 19 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Herley in view of Zhang et al. (U.S. Patent No. 6,731,794). Furthermore, claims 10, 22, 29 and 31 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Herley in view of Tao (WO 01/26359).

In response, Applicants respectfully request reconsideration in view of the following remarks.

A. Patentability of Independent Claims 1, 13 and 24

Contrary to Applicants' previous remarks, the Examiner asserts that Herley discloses a "*demosaicing operator incorporating a frequency-based transformation operator,*" as claimed in the independent claims 1, 13 and 24. In support of this assertion, the Examiner states on page 3 that "Herley expressly mentions 'We would like to color interpolate the image so **that** DCT coefficient is closes to an integer times stepsize for that coefficient....,' the requirement of interpolation (demosaicing), 'DCT coefficiens of the image should equal quantizer reconstruction levels.' and '...will settle for approximately satisfying the first' (i.e. DCT coefficients requirement) (col. 5 lines 1-11)." The Examiner further states that "[t]his teaching is read on the claimed language because color interpolation (demosaicing) of Herley must satisfy the DCT coefficient requirement or, another words, the DCT operation (frequency-based transform) is incorporated in the color interpolation process, thus, **inherently** (because the DCT process), incorporated a DCT operator to take into account a subsequent frequency based compression process."

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While it is true that Herley wants "to color interpolate the image so that DCT coefficient is close to an integer times the stepsize for that coefficient," the cited reference of Herley **DOES NOT** disclose a *"demosaicing operator incorporating a frequency-based transformation operator,"* as recited in claim 1. As described in the specification of the current application, a demosaicing operator in accordance with an embodiment of the invention is "a compression-considered demosaicing matrix 206," which is mathematically defined as $[[S][C_{y_2}][T]^t]^{-1}$ (see page 12, line 27), where $[S]$ is an $\frac{N}{2} \times N$ sampling matrix (see page 11, line 5), $[C_{y_2r}]$ is the inverse color transformation matrix from RGB to Yc_bc_r (see page 12, lines 8-10) and $[T]$ is the DCT transformation matrix (page 11, lines 8-10). In an embodiment, the DCT transformation matrix is a frequency-based transformation operator (see page, line 11 of the specification). The cited reference of Herley does not disclose such a demosaicing operator or any *"demosaicing operator incorporating a frequency-based transformation operator,"* as recited in claim 1.

The above conclusion is further supported by the fact that Herley describes one exemplary interpolation scheme in column 4, lines 21-28, which involves averaging values measured by red, green and blue sensors. Thus, this interpolation scheme DOES NOT use a *"demosaicing operator incorporating a frequency-based transformation operator,"* as recited in claim 1. Thus, the independent claim 1 cannot be anticipated by Herley. As such, Applicants respectfully request that the independent claim 1 be allowed.

The above remarks are also applicable to the independent claim 13, which recites similar limitations, and to the independent claim 24, which recites similar limitations with respect to a system for processing a mosaiced image. Therefore, Applicants respectfully assert that the independent claims 13 and 24 are also not anticipated by the cited reference of Herley, and thus, should be allowed.

B. Patentability of Dependent Claims 2, 3, 14, 15 and 25

With respect to the subject matter of dependent claims 2, 3, 14, 15 and 25, the Office Action states on page 4 that Herley clearly teaches the limitation of "includes a color space conversion operator." This is a correct statement in that the method of Herley does involve color space conversion. However, the relevant limitation of claims 2, 3, 14 and 15 is "*said demosaicing operator used in said processing [demosaicing] of said mosaiced image includes a color space conversion operator.*" Similarly, the relevant limitation of claim 25 is "*said demosaicing operator used by said demosaicing means includes a color space conversion operator.*" Thus, the issue with respect to the dependent claims 2, 3, 14, 15 and 25 is whether Herley discloses a "*demosaicing operator*" that "*includes a color space conversion operator*".

As stated above, the cited reference of Herley describes one exemplary interpolation scheme in column 4, lines 21-28, which involves averaging values measured by red, green and blue sensors. There is no indication whatsoever that this interpolation scheme involves using a "*demosaicing operator*" that "*includes a color space conversion operator*" such as a compression-considered demosaicing matrix defined as $[[S][C_{y2r}][T]^t]^{-1}$ according to an embodiment of the invention, where $[S]$ is an $\frac{N}{2} \times N$ sampling matrix, $[C_{y2r}]$ is the inverse color transformation matrix from RGB to Yc_bc_r and $[T]$ is the DCT transformation matrix. Thus, dependent claims 2, 3, 14, 15 and 25 cannot be anticipated by Herley. As such, Applicants respectfully request that these dependent claims 2, 3, 14, 15 and 25 be allowed.

C. Patentability of Dependent Claims 6, 8-12, 16, 19, 21-23, 26 and 28-33

Each of the dependent claims 6, 8-12, 16, 19, 21-23, 26 and 28-33 depends on one of the independent claims 1, 13 and 24. As such, these dependent claims include all the limitations of their respective base claims. Therefore, Applicants submit that these dependent claims are allowable for at least the same reasons as their respective base claims.

Applicants respectfully request reconsideration of the claims in view of the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

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